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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,610	09/14/2006	Gillian Smith	03981/0203467-US0	6340

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EXAMINER	
PAK, YONG D	
ART UNIT	**PAPER NUMBER**
1652	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,610	SMITH ET AL.	
	Examiner	Art Unit	
	Yong D. Pak	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 February 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,15,16,32-36 and 38* is/are pending in the application.

4a) Of the above claim(s) *1,32-34 and 38* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15,16,35 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 October 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/4/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This application is a 371 of PCT/GB04/01453.

The amendment filed on February 19, 2008, amending claims 1, 15-16, 32-36 and 38 and canceling claims 2-14, 17-31, 37 and 39, has been entered.

Claims 1, 15-16, 32-36 and 38 are pending. Claims 1, 32-34, and 38 are withdrawn. Claims 15-16 and 35-36 are under consideration.

Election/Restrictions

Applicant's election with traverse of Group XIX (claims 35-36) in the reply filed on February 19, 2008 is acknowledged. The traversal is on the ground(s) that claims 1, 32-34, and 38 should be rejoined with claims 15-16 and 35-36 because claims 1, 32-34, and 38 are drawn to detecting or modulating the expression of CYP2S1 in the skin, which Rylander fails to neither disclose nor suggest. This is not found persuasive because claims 15-16 and 35-36 and claims 1, 32-34, and 38 are drawn to methods that carry out different processes, as outlined in the Restriction Requirement. The technical feature linking the above claims is a CYP2S1 gene, which is taught by Rylander et al. Therefore, the special technical feature linking the above claims does not constitute a special technical feature as defined by PCT Rule 13.2, as it does not define a contribution over the prior art.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1, 32-34, and 38 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable

generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on February 19, 2008.

Claim for Foreign Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. The certified copy has been filed in the instant application.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on October 4, 2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

When a sequence is presented in a drawing, regardless of the format or the manner of presentation of that sequence in the drawing, the sequence must still be included in the Sequence Listing and the sequence identifier ("SEQ ID NO:X") must be used, either in the drawing or in the Brief Description of the Drawings. MPEP 2422.02. See particularly drawing figure 7.

Specification

This application is a contains sequence disclosure that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825. To be in compliance, applicants are required to identify nucleotide sequences of at least 10 nucleotides and amino acid sequence of at least 4 amino acids in the specification by a proper sequence identifier, i.e. "SEQ ID NO:", see MPEP 2422.01). It is particularly noted that the sequences on page 11, for example, lack sequence identification numbers.

Claim Objections

Claims 15-1635-36 objected to due to the recitation of "CYP2S1". Abbreviation/acronym unless otherwise obvious and/or commonly used in the art, should not be recited in the claims without at least once reciting the entire phrase for which the abbreviation/acronym is used.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 35 and claims 15-16 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 35 recites the limitation "the treated first sample" in 8. There is insufficient antecedent basis for this limitation in the claim.

Claim 35 and claims 15-16 depending therefrom are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 35 recites the phrase administering to the mammal “detecting effectiveness of a skin treatment”. It is not clear to the Examiner as to how those skilled in the art can detect effectiveness of a skin treatment. This is because CYP2S1 levels of a treated first sample is compared to another sample, whose basal CYP2S1 levels may be higher or lower than the basal CYP2S1 of the untreated first sample. Further, step of administering or adding “skin treatment" to the untreated first sample is missing. Therefore, the method lacks essential step(s).

Claim 36 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 36 recites the phrase administering to the mammal “increase in the CYP2S1 level”. The metes and bounds of the phrase in the context of the claim is not

clear. It is not clear to the Examiner how "an increase in the CYP2S1 level in the first sample compared to the second sample" is possible since only the basal levels of CYP2S1 in a first sample and second sample are detected. Therefore, the method lacks essential step(s).

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 15-16 and 35-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 15-16 and 35-36 are drawn to a method of detecting effectiveness of a skin treatment or whether a subject is likely to respond to a skin treatment with any skin treatment or a chemical which is metabolisable by CYP2S1, wherein upon administering said skin treatment or chemical, CYP2S1 level is increased or decreased. Therefore, the claims are drawn to a method of using a genus comprising any skin treatment or a chemical having any structure, including a wide variety of compounds such as organic compounds, inorganic compounds or peptides and polypeptides, including any recombinants, variants and mutants thereof. Therefore, the claims are drawn to a method of detecting effectiveness of a skin treatment or whether a subject is likely to respond to a skin treatment by using a genus of skin treatments having unknown

structure. There is insufficient descriptive support for using a genus of these skin treatments. The specification does not disclose even a representative number of each of the above and/or structurally identifiable characteristics of the genus of skin treatments that directly or indirectly causes increased or decreased levels of CYP2S1. The specification only teaches two examples, a method of detecting effectiveness of a skin treatment or whether a subject is likely to respond to a skin treatment by administering coal tar or all-trans retinoic acid to a sample of diseased skin. These two examples are not enough and do not constitute a representative number of all the species to describe the whole genus of skin treatments and there is no evidence on the record of the relationship between the structure of the coal tar or all-trans retinoic acid and the structure of any or all skin treatments that directly or indirectly causes increased or decreased levels of CYP2S1.

Given this lack of description of the representative species encompassed by the genus of the claims, the specification fails to sufficiently describe the claimed invention in such full, clear, concise, and exact terms that a skilled artisan would recognize that applicants were in possession of the inventions of claims 15-16 and 35-36.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Claims 15-16 and 35-36 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of detecting effectiveness

of a skin treatment or whether a subject is likely to respond to a skin treatment by administering coal tar or all-trans retinoic acid to a sample of diseased skin, does not reasonably provide enablement for such a method of a method of detecting effectiveness of a skin treatment or whether a subject is likely to respond to a skin treatment by administering any skin treatment. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Factors to be considered in determining whether undue experimentation is required are summarized in In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988). They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

Claims 15-16 and 35-36 are drawn to a method of detecting effectiveness of a skin treatment or whether a subject is likely to respond to a skin treatment with any skin treatment or a chemical which is metabolisable by CYP2S1, wherein upon administering said skin treatment or chemical, CYP2S1 level is increased or decreased. Therefore, the claims are drawn to a method of using a genus comprising any skin treatment or a chemical having any structure, including a wide variety of compounds such as organic compounds, inorganic compounds or peptides and polypeptides, including any recombinants, variants and mutants thereof. Therefore, the claims are drawn to a

method of detecting effectiveness of a skin treatment or whether a subject is likely to respond to a skin treatment by using a genus of skin treatments having unknown structure.

The scope of the claims is not commensurate with the enablement provided by the disclosure with regard to the extremely large number of skin treatments used in the claimed method. The claims encompass using a wide variety of organic compounds and inorganic compounds that directly or indirectly increases or decreases CYP2S1 levels. However, in this case the disclosure is limited to a method of detecting effectiveness of a skin treatment or whether a subject is likely to respond to a skin treatment by administering coal tar or all-trans retinoic acid to a sample of diseased skin and provides no guidance with regard to the using of any or all other skin treatments to directly or indirectly increase or decrease levels of CYP2S1. It would require undue experimentation of the skilled artisan to make and use any skin treatment in the claimed method. In view of the great breadth of the claim, amount of experimentation required to identify and make skin treatments that may directly or indirectly increase or decrease levels of CYP2S1, the lack of guidance, working examples, and/or unpredictability of the art in predicting whether a given compound can directly or indirectly increase or decrease levels of CYP2S1, the claimed invention would require undue experimentation. As such, the specification fails to teach one of ordinary skill how to use the full scope of the skin treatments in the claimed method.

The specification does not support the broad scope of the claims which encompasses a method of detecting effectiveness of any skin treatment or whether a

subject is likely to respond to any skin treatment because the specification does not establish: (A) a universal method to identify and use any or all compounds that may directly or indirectly increase or decrease levels of CYP2S1; (B) with respect to agents that are polypeptides/polynucleotides, the specification does not establish regions of its structure which may be modified without affecting its activity; (C) a rational and predictable scheme for selecting agents with an expectation of increasing or decreasing levels of CYP2S1; and (D) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including method of using any skin treatments to detecting effectiveness of the skin treatment or whether a subject is likely to respond to the skin treatment. The scope of the claims must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of a compounds having the desired biological characteristics is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 15-16 and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable Bickers et al. and Rylander et al.

Claims 15-16 and 35-36 are drawn to a method of detecting effectiveness of a skin treatment or whether a subject is likely to respond to a skin treatment with any skin treatment or a chemical which is metabolized by CYP2S1, wherein upon administering said skin treatment or chemical, CYP2S1 level is increased or decreased.

Bickers et al. (*J Clin Invest* **62** (1978), p. 1061-1068 - form PTO-892) discloses a method of a method of detecting effectiveness of a skin treatment comprising of coal tar or whether a subject is likely to respond to a skin treatment comprising of coal tar by measuring the enzyme's level (page 1062). With this teaching at hand, one having

ordinary skill in the art would have looked to other known cytochrome P450 enzymes shows genes have been cloned in order to better measure or detect cytochrome P450 enzyme in tissue.

The difference between the reference of Bickers et al. and the instant claims is that the reference of Bickers et al. does not disclose a method of using CYP2S1 as the cytochrome P450 enzyme.

However, Rylander et al. (*Biochem Biophys Res Commun* **281** (2001), pp. 529–535 – form PTO-1449) discloses isolation and cloning of a CYP2S1, method of detecting CYP2S1 using an antibody and detecting CYP2S1 mRNA levels(pages 530, 532 and 533.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the CYP2S1 of Rylander et al. in the method of Bickers et al. and detect levels of CYP2S1 by using antibodies specific to said CYP2S1 or detect CYP2S1 mRNA. One of ordinary skill in the art at the time the invention was made would have been motivated to substituted the CYP2S1 enzyme of Rylander et al. in the method of Bickers et al. since the CYP2S1 enzyme has been cloned, allowing easier and more specific detection of CYP2S1 levels in tissue. One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation for success because the level of skill in the art is high since Rylander et al. teaches the cDNA sequence encoding the P450 enzyme and how to detect the enzyme's level in tissue using antibodies or measuring CYP2S1 mRNA.

Therefore, Bickers et al. and Rylander et al. render claims 15-16 and 35-36 *prima facie* obvious to those skilled in the art.

Other Relevant Art

Smith et al. (The Lancet, Vol. 361, NO. 9366 – form PTO-1449) discloses a method of detecting effectiveness of coal tar by measuring CYP2S1 levels but is not available as prior art because the reference was published or made known to the public after the instant invention was filed.

Conclusion

Claims 15-16 and 35-36 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yong Pak whose telephone number is 571-272-0935. The examiner can normally be reached 6:30 A.M. to 5:00 P.M. Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nashaat Nashed can be reached on 571-272-0934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

/Yong D Pak/
Primary Examiner, Art Unit 1652